

CLAIMS:

1. A method of authenticating an audio-visual signal comprising formation of a progressive signature by generating a variable number of signature bits.
2. A method according to claim 1 comprising the steps of
5 splitting said audio-visual signal into blocks and progressively decreasing the size of said blocks.
3. A method according to claim 2 further comprising the steps of
generating said signature from the contents of said blocks, whereby said
10 number of signature bits progressively increases with decreasing block size.
4. A method according to claim 1 further characterised in that said number of signature bits increases with the complexity of said audio-visual signal.
- 15 5. A method according to claim 4 further characterised by the steps of splitting said audio-visual signal into blocks, merging similar blocks into regions, and generating said signature based on said regions.
- 20 6. A method according to claim 5, the steps of merging similar blocks into regions and generating said signature based on said regions comprising the steps of calculating an image characteristics value for each of said blocks, assigning blocks with similar image characteristics values to regions, calculating differences between image characteristics values of said regions,
25 and
generating said number of signature bits based on said differences between said image characteristics values of said regions.

7. A method according to claim 6, said image characteristics values being DC-values.

8. A method according to claim 6 further characterised in that said steps for the
5 formation of said progressive signature are at least once looped.

9. A method according to claim 8 further characterised in that the size of said blocks is decreased in each loop.

10. A method according to claim 1 further characterised in that the length of said
10 signature with a variable number of signature bits is limited to a maximum signature length.

11. A method according to claim 10 further comprising the step of embedding said
signature in said audio-visual signal as a watermark, said maximum signature length being
15 defined as the maximum payload of the watermark.

12. A method according to claim 1 further comprising the steps of implanting said
signature in said audio-visual signal and/or storing or transmitting said audio-visual signal.

13. A method according to claim 12 whereby the signature is implanted in the
20 audio-visual signal as a watermark.

14. A method according to claims 1 to 13 further comprising the step of verifying
the authenticity of said audio-visual signal by verifying said signature.

15. A method according to claim 7 whereby the step of assigning said blocks to
regions with similar DC values comprises repeating the steps of:

picking a first block not yet assigned to a region according to a pseudo-
random sequence wherein said first block becomes the first block of a new region and the
30 DC-value of said first block becomes the DC-value of said new region, and

examining each neighbouring block of said first block whereby a further block
of said neighbouring blocks is assigned to said new region and the DC-value of the new
region is updated with the DC-value of the further block if the DC-value of said further block
is less than a threshold,

until all blocks are assigned to a region.

16. A method according to claim 7 whereby the step of calculating DC-differences between said regions comprises the steps of

5 arranging the DC-values of said regions in the order in which the regions are formed and
calculating said DC-differences between consecutive regions for all regions.

17. A method according to claim 6 whereby the step of splitting said audio-visual
10 signal into blocks is characterised by said blocks being formed in a previously formed region.

18. A method according to claim 7 whereby said step of generating signature bits based on said DC-differences is characterised by thresholding said DC-differences.

15 19. A method according to any of the preceding claim, wherein said audio-visual signal is a digital image or frame of a digital video.

20. A system for authenticating an audio-visual signal comprising a device for formation of a progressive signature generating a variable number of signature bits.

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21. A system for authenticating an audio-visual signal according to claim 20, said device for formation of a progressive signature comprising

25 a means for splitting said audio-visual signal into blocks,
a means for calculating the DC value of said blocks,
a means for assigning said blocks to regions with similar DC values,
a means for calculating DC-differences between said regions, and
a means for generating said signature bits whereby the signature bits are based on said DC differences.

30 22. A computer readable medium having a plurality of computer-executable instructions for performing the method according to claim 1 comprising
a program module for formation of a progressive signature giving instructions to a computer
for generating a variable number of signature bits.

23. A computer readable medium according to claim 22 further having a plurality of computer-executable instructions comprising

a first program module for splitting an audio-visual signal into blocks,

a second program module for calculating the DC value of said blocks,

a third program module for assigning said blocks to regions with similar DC values,

a fourth program module for calculating DC-differences between said regions,

and

a fifth program module for generating said signature bits, said signature bits being based on said DC differences.

24. Use of the method according to claim 1 in a surveillance camera or security camera or digital image camera or digital video camera or a medical imaging system.